

A NEW SPECIES OF *COCHYLIS* (LEPIDOPTERA: TORTRICIDAE:
COCHYLINI) FROM ARGENTINA: A POTENTIAL BIOCONTROL AGENT
AGAINST POMPOM WEED (ASTERACEAE)

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Abstract.—*Cochylis campuloclinium*, new species, is described and illustrated from Argentina. The new species was discovered during efforts to find biological control agents against pompom weed, *Campuloclinium macrocephalum* (Less.) D.C. (Asteraceae), a perennial of the New World tropics that recently has invaded South Africa. The new species is similar to *C. argentinana* Razowski but can be distinguished by the shape of the sacculus in the male genitalia: a hooked-shaped process in *C. campuloclinium*, a broad, distally excavated plate in *C. argentinana*.

Key Words: Neotropics, South Africa, morphology, invasive species, *Campuloclinium macrocephalum*

Pompom weed, *Campuloclinium macrocephalum* (Less.) D.C. (Asteraceae), is a perennial aster of the New World tropics that recently invaded South Africa and is showing evidence of becoming one of the most aggressive alien plants in that country (Malherbe 2004). It colonizes disturbed sites such as roadsides and has the potential to invade native grasslands and wetlands, displacing pasture vegetation. It presumably was introduced into South Africa as an ornamental plant in the early 1970s.

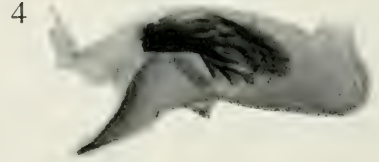
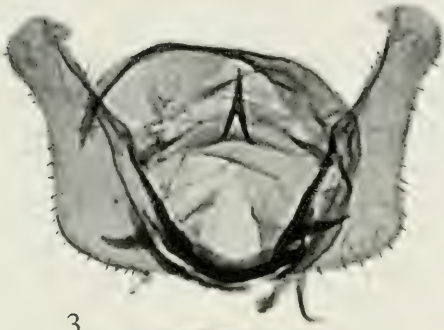
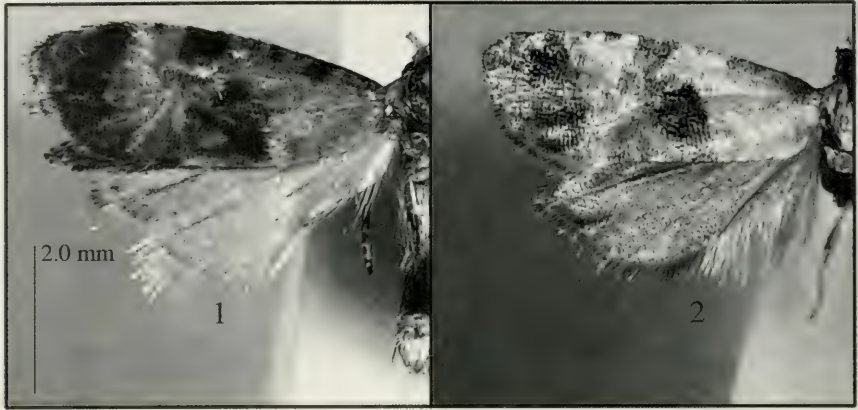
During foreign exploration in Argentina for potential biological control agents of pompom weed, a tortricid moth (Cochylini) was reared from larvae infesting this plant. The majority of cochylinines feed on Asteraceae, but host fidelity at the species- or generic-level has not been studied for most. Although the potential of this moth to provide effective control of the weed has not been

determined yet, I take this opportunity to describe and illustrate this new species.

Dissection methodology follows that presented in Brown and Powell (1991). Images of adults and genitalia were captured using a Microoptics digital camera system and enhanced using Adobe Photoshop® and Illustrator® software. Terminology for genitalic structures follows Horak (1984). Abbreviations for depositories of specimens are as follows: SANC = South African National Collection of Insects, Cape Town, South Africa; and USNM = National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

Cochylis campuloclinium Brown,
new species
(Figs. 1, 3, 5, 7)

Diagnosis.—In contrast to the situation in most tortricids where adult facies



2.0 mm



2.0 mm

provide characters extremely useful in assignment to at least the generic level, within Cochylini forewing pattern elements and color often are nearly useless; the structures of the male and female genitalia provide the only reliable features for diagnosis and discrimination. Hence, it is not surprising that *Cochylis campuloclinium* is superficially similar to many species of *Cochylis* (e.g., *C. hybridella* (Hübner 1813)) and cannot be diagnosed on the basis of facies alone (Figs. 1, 2). The male and female genitalia are most similar to those of *Cochylis argentinana* Razowski, 1967, to which it probably is most closely related. The male genitalia of *C. campuloclinium* can be distinguished by the broadly hook-shaped process from the base of the valva (Fig. 3) which in *C. argentinana* is a broad plate, with a deep, rounded excavation in the distal portion (Fig. 4). The female genitalia of *C. campuloclinium* (Fig. 5) are distinguished by a better defined, sclerotized band at the posterior ventral edge of the corpus bursa and at the ostium than that in *C. argentinana* (Fig. 6). The species is assigned to *Cochylis* on the basis of the following features: dorsum of tegumen rounded (no trace of an uncus); socius rudimentary, pendant, with few scales and/or setae; valva relatively slender, widest at base, attenuate or parallel-sided distally; transtilla with a moderately long mesal process that lacks a notch at the tip; and aedeagus gently arched with an acutely pointed distal tip and dense patch of large cornuti.

Description.—*Head:* Vertex and frons white; labial palpus cream with scattered

pale brown scales on outer surface, white on inner surface, length ca. 1.3 times horizontal diameter of compound eye; antenna with extremely short setae in male, less than width of flagellomere.

Thorax: Cream intermixed with white dorsally; legs simple, without hairpencil or modified scales. Forewing (Fig. 1) length 4.7–4.9 mm (\bar{x} = 4.8; n = 5) in males, 4.7 mm (n = 2) in females; upperside with basal one-third mostly cream white, bordered distally by an ill-defined pale orange-brown median fascia, fascia represented on costa by large, gray, trapezoidal patch ca. 0.7 length from base to apex and an orange-brown blotch from patch to dorsum; median fascia bordered distally by an area of cream with small, irregular patches of pale gray strigulation; numerous tiny, gray, ill-defined spots along costa from base to trapezoidal patch; subtermen with irregular gray band; apical and terminal regions with small blotches of pale red-brown between major veins. Hindwing cream, with scattered pale brown scales, especially in apical region; basal three-fourths of costa of male with narrow fold bearing specialized scales, absent in female.

Abdomen: Cream. Male genitalia (Fig. 3; image of USNM slide 95255; Argentina; n = 3) with tegumen very broad; uncus absent; socii weakly developed; transtilla with elongate median projection extending well beyond dorsum of tegumen; valva broadest at base, narrowed ca. 0.5 length, parallel-sided in distal 0.3, rounded apically; sacculus short, basal, well defined, free, broadly hooked-shaped, with attenuate tip; juxta

Figs. 1–6. Adults and genitalia of *Cochylis* species. 1, Adult of *C. campuloclinium* (paratype). 2, Adult of *C. argentinana* (holotype). 3, Male genitalia of *C. campuloclinium* (paratype). 4, Male genitalia of *C. argentinana* (holotype). 5, Female genitalia of *C. campuloclinium* (paratype). 6, Female genitalia of *C. argentinana* (paratype).

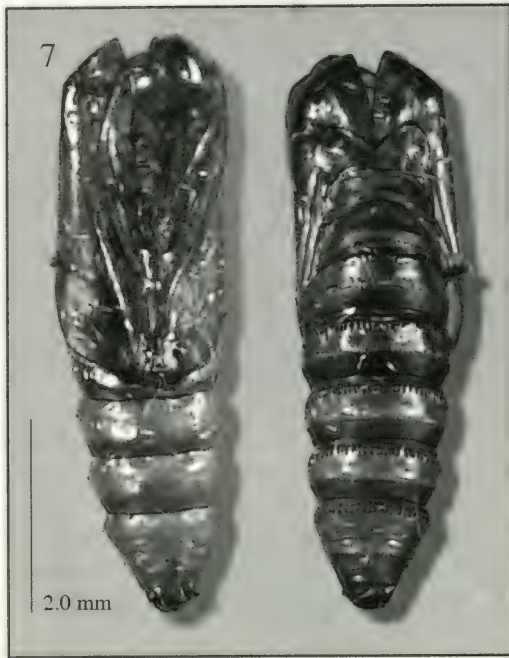


Fig. 7. Pupal exuviae of *C. campuloclinium*, venter (left), dorsum (right).

large; aedeagus short, broad, arched near middle, attenuate and pointed distally; vesica with ca. 15 variably sized cornuti. Female genitalia (Fig. 5; image of USNM slide 95268; Argentina; $n = 3$) with papillae anales relatively small; apophyses slender; sterigma broad, weakly and evenly sclerotized, with a narrow, strongly sclerotized arch ventrad of ostium and relatively broad sclerotized band at posterior edge of ostium; ductus bursae short, extremely broad, somewhat sclerotized, with an elongate wedge-shaped sclerite comprised of a pair of lateral, nearly parallel plates; corpus bursae slightly broader than ductus bursae, strongly wrinkly, lacking spiculae; ductus seminalis from anteriormost region of corpus bursae.

Pupa.—Based on 2 reconstructed exuviae (Fig. 7). Length 5.8 mm; cylindrical, typically tortricine, without conspicuous sculpturing, no process from head; wings extending just beyond the middle of

segment A4. Venter of segments A2–9 smooth, dorsum of segment A1 lacking spines; dorsum of segment A2 with two rows of similar-sized tiny spines; dorsum of segments A3–A7 with two rows of conspicuous spines, those of anterior row 2–3 times as large as those of posterior row, extending nearly from spiracle to spiracle across dorsum; anterior row situated just posterad of segment junction, posterior row on conspicuous ridge near middle of segment; dorsum of A8–9 with single row of large spines; posterior end of abdomen bluntly rounded, without cremaster; A10 with a pair of thorns, one each at dorso-lateral shoulder, each bordered by a pair of long, hook-tipped setae; venter of A10 with two short linear rows of four long, hook-tipped setae, each seta from a conspicuous pinaculum.

Holotype.—Male, Argentina, 23 km E Itaibate, 27°20'9"N, 57°05'04"W, 76 m, 9 Dec 2003, S. Nesar & T. Olckers, reared from capitulum of *Campuloclinium macrocephalum* (Asteraceae). Deposited in SANC.

Paratypes.—(4 ♂, 2 ♀). Same data as holotype. Deposited in SANC (2 ♂, 1 ♀) and USNM (2 ♂, 1 ♀).

In addition to the type series, I examined 11 specimens reared from flowers of *Campuloclinium macrocephalum* labeled "S. America, Argentina, collected at various locations, the main ones being: 74 km south of Santa Tome (28°31'10.9"S, 56°6'21.6"W); 7 km north of Santa Tome (28°29'58"S, 56°6'42.4"W); 16 km east of Machagai (26°59'30.4"S, 59°53'36.8"W); 10 km outside Goya (29°12'2.6"S, 59°13'29"W); 125 km west of Buenos Aires (33°28'53.1"S, 58°57'5.4"W), i. 2006, AJ McConnachie, ABR Witt and P Mpedi." Although these specimens undoubtedly are conspecific with the type series and in better condition, they are not designated as paratypes owing to the ambiguous collecting locality for each

specimen. The specimens are deposited in USNM, SANC, and The Natural History Museum, London, U.K.

Etymology.—The specific epithet is the genus name of the host plant.

Discussion.—While host specificity has not yet been investigated in *Cochylis campuloclinium*, several species of *Cochylini* have been employed as biological control agents against weedy asters, including *Lorita baccharivora* Pogue against *Baccharis halimifolia* in Australia (Pogue 1988, Diatloff and Palmer 1988), *Agapeta zoegana* (Linnaeus) against *Centaurea maculosa* in the western U.S. (e.g., Schroeder 1985; Story 1985; Müller et al. 1988, 1989; Harris 1990; Story et al. 1991, 1999, 2000; Steinger and Muller-Scharer 1992; Powell et al. 2000), and *Cochylis atricapitana* (Stephens) against *Senecio jacobae* in Australia (McLaren 1992). The most successful of these is *Agapeta zoegana*, introduced from the Palearctic Region for the control of spotted knapweed in pasture lands in the western U.S.

ACKNOWLEDGMENTS

I thank Kevin Tuck, The Natural History Museum, London, United Kingdom, for the loan of the holotype male and a paratype female of *C. argentinana*, and Marie Metz, USDA, Systematic Entomology Laboratory, Washington, D.C., USA, for preparing the illustrations and arranging the plates. I thank the following for reviewing the manuscript: Eric Metzler, Las Cruces, New Mexico; Sonja Sheffer, Systematic Entomology Laboratory, Beltsville, Maryland; Thomas Henry, Systematic Entomology Laboratory, National Museum of Natural History, Washington, D.C.; William E. Miller, University of Minnesota, St. Paul, Minnesota; and Richard L. Brown, Mississippi State University, Mississippi State, Mississippi.

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